

Ternary Compounds

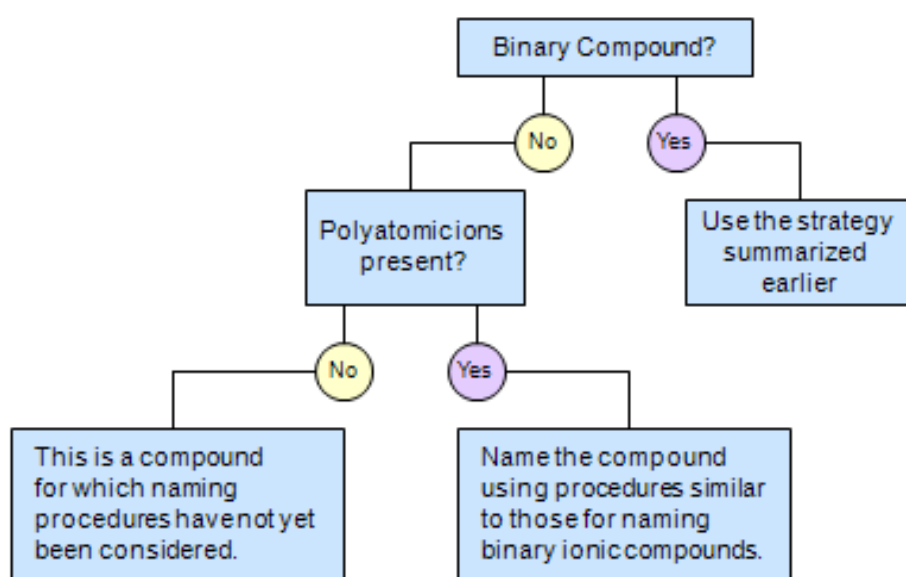
Ternary compounds are those containing three different elements. (NaNO₃, NH₄Cl, etc.). The naming of ternary compounds involves the memorization of several positive and negative polyatomic ions, (two or more atoms per ion), and adding these names to the element with which they combine.

Full name (roman numeral) + name of
** if needed ** polyatomic ion

Binary rules for indicating the oxidation number of metals and for indicating the numbers of atoms present are followed. The polyatomic ions that should be learned are listed in a separate handout.

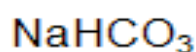
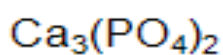
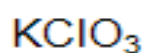
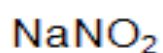


Naming Chemical Compounds



Zumdahl, Zumdahl, DeCoste, *World of Chemistry*, 2002, page 102

Ternary Compounds



Sodium nitrite
Potassium chlorate
Calcium phosphate
Iron (III) hydroxide
Sodium bicarbonate

Sodium hydrogencarbonate



sodium nitride

Common Polyatomic Ions

Names of Common Polyatomic Ions			
Ion	Name	Ion	Name
NH_4^{1+}	ammonium	CO_3^{2-}	carbonate
NO_2^{1-}	nitrite	HCO_3^{1-}	hydrogen carbonate ("bicarbonate" is a widely used common name)
NO_3^{1-}	nitrate	ClO^{1-}	hypochlorite
SO_3^{2-}	sulfite	ClO_2^{1-}	chlorite
SO_4^{2-}	sulfate	ClO_3^{1-}	chlorate
HSO_4^{1-}	hydrogen sulfate ("bisulfate" is a widely used common name)	ClO_4^{1-}	perchlorate
OH^{1-}	hydroxide	$\text{C}_2\text{H}_3\text{O}_2^{2-}$	acetate
CN^{1-}	cyanide	MnO_4^{1-}	permanganate
PO_4^{3-}	phosphate	$\text{Cr}_2\text{O}_7^{2-}$	dichromate
HPO_4^{2-}	hydrogen phosphate	CrO_4^{2-}	chromate
$\text{H}_2\text{PO}_4^{1-}$	dihydrogen phosphate	O_2^{2-}	peroxide



ndahl, Zumdahl, DeCoste, *World of Chemistry*, 2000, page 100

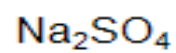
Ternary Compounds

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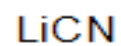
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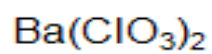
4.



5.



6.



7.

calcium phosphate

ammonium carbonate

aluminum sulfate

copper (II) hydroxide